Operating Instructions
Bedienungsanleitung
Mode d'emploi
Istruzioni per l'uso

RG DYNAMIC PROCESSOR
RG-DYNAMIKPROZESSOR
PROCESSEUR DYNAMIQUE RG
PROCESSORE DINAMICO RG

RG-60

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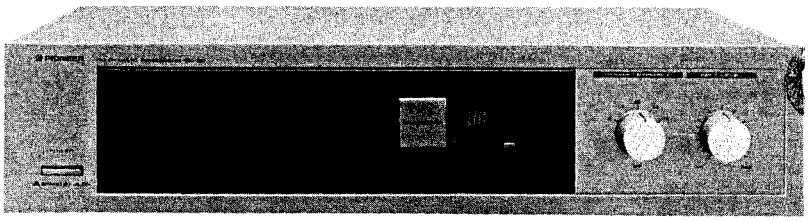


Thank you for buying this Pioneer product.
Please read through these operating instructions and then you will know how to operate your model properly. After you have finished reading the instructions, put them away in a safe place for future reference.
These operating instructions are based on the model HEM, and they can be used for the KU, KC, HB, YP, S and S/G models. The differences between the models are given below.

HEM model:
For Europe ('HEM' stamped on packing case): power line voltage is a.c. 220 Volts ~.

KU and KC models:
For U.S.A. and Canada ('KU' or 'KC' stamped on packing case): power line voltage is AC 120 Volts.

HB model
For U.K. ('HB' stamped on packing case): power line voltage is a.c. 240 Volts ~.

YP model:
For Australia ('YP' stamped on packing case): power line voltage is a.c. 240 Volts ~.

S and S/G models:
For destinations excluding above (S or S/G stamped on packing case); A 4-point (~ AC 110/120/220/240 Volts) voltage selector switch is provided.

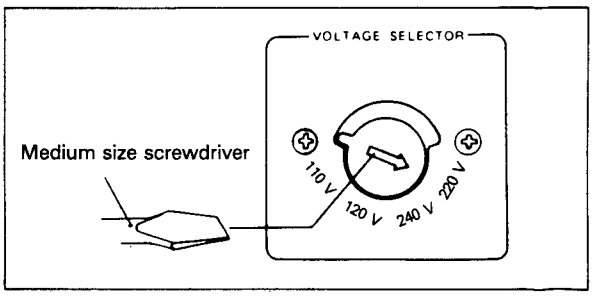
IMPORTANT NOTICE [For KU and KC models]

The serial number for this equipment is located on the rear panel. Please write this serial number on your enclosed warranty card and keep in a secure area. This is for your security.

LINE VOLTAGE SELECTOR SWITCH

Only S and S/G models are provided with this switch but KU, KC and other models (HEM, HB, YP) are not provided with this switch.
You will find the line voltage selector switch on rear panel. This switch has positions for 110 V, 120 V, 220 V, and 240 V power sources. Before your model is shipped from the factory, the switch is set to the power requirements of the destination; nevertheless, you should check that it is set properly before plugging the power cord into the AC outlet. If the voltage is not properly set or if you move to an area where the voltage requirements differ, adjust the selector switch as follows. Before adjusting disconnect the power cord.

1. Provide yourself with a medium size screwdriver.
2. Insert the screwdriver into the arrow on the voltage selector and adjust so that the tip of the arrow points to the voltage value of your area.



WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

ENGLISH
DEUTSCH
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SAFETY INSTRUCTIONS [FOR KU MODEL]

READ INSTRUCTIONS — All the safety and operating instructions should be read before the appliance is operated.

RETAIN INSTRUCTIONS — The operating instructions should be retained for future reference.

HEED WARNING — All warnings on the appliance and in the operating instructions should be adhered to.

FOLLOW INSTRUCTIONS — All operating and use instructions should be followed.

WATER AND MOISTURE — The appliance should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

LOCATION — The appliance should be installed in a stable location.

WALL OR CEILING MOUNTING — The appliance should not be mounted to a wall or ceiling.

VENTILATION — The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

HEAT — The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

POWER SOURCES — The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

POWER-CORD PROTECTION — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

CLEANING — The appliance should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzine, insecticides or other volatile liquids since they may corrode the cabinet.

POWER LINES — An outdoor antenna should be located away from power lines.

NONUSE PERIODS — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

OBJECT AND LIQUID ENTRY — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

DAMAGE REQUIRING SERVICE — The appliance should be serviced by Pioneer authorized service center or qualified service personnel when:

- The power-supply cord or the plug has been damaged; or
- Objects have fallen, or liquid has been spilled into the appliance; or
- The appliance has been exposed to rain; or
- The appliance does not appear to operate normally or exhibits a marked change in performance; or
- The appliance has been dropped; or the enclosure damaged.

SERVICING — The user should not attempt to service the appliance beyond that described in the operating instructions. For all bther servicing, contact the nearest Pioneer authorized service center.

OUTDOOR ANTENNA GROUNDING — If an outside antenna is connected to the antenna terminal, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges.
In the U.S.A. section 810 of the National Electrical Code, ANSI/NEPA No. 70-1981, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Fig. A.

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE INSTRUCTIONS

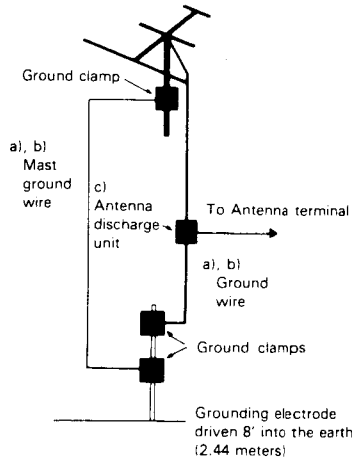


Fig. A

a) Use No. 10 AWG (5.3 mm²) copper or No. 8 AWG (8.4 mm²) aluminum or No. 17 AWG (1.0 mm²) copper-clad steel or bronze wire, or larger as ground wires for both mast and lead-in.
b) Secure lead-in wire from antenna to antenna discharge unit and mast ground wire to house with stand-off insulators, spaced from 4 feet (1.22 meters) to 6 feet (1.83 meters) apart.
c) Mount antenna discharge unit as closely as possible to where lead-in enters house.

IMPORTANT [FOR KU MODEL]

The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

CAUTION:
TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

IMPORTANT

To prevent electric shock, do not remove cover. No user serviceable parts inside, refer servicing to qualified service personnel. If the apparatus is fitted with AC main power outlet(s), see REAR PANEL FACILITIES for convenient connection of additional Hi-Fi component(s). Make all connections to the AC outlet(s) and the signal terminals first. Connect the plug to the wall socket last, make sure that the power switch is off. Disconnect the wall plug when the equipment is not in regular use, e.g. when on vacation.

FOR USE IN THE UNITED KINGDOM AND AUSTRALIA

CAUTION 240 V: Mains supply voltage is factory adjusted at 240 V.

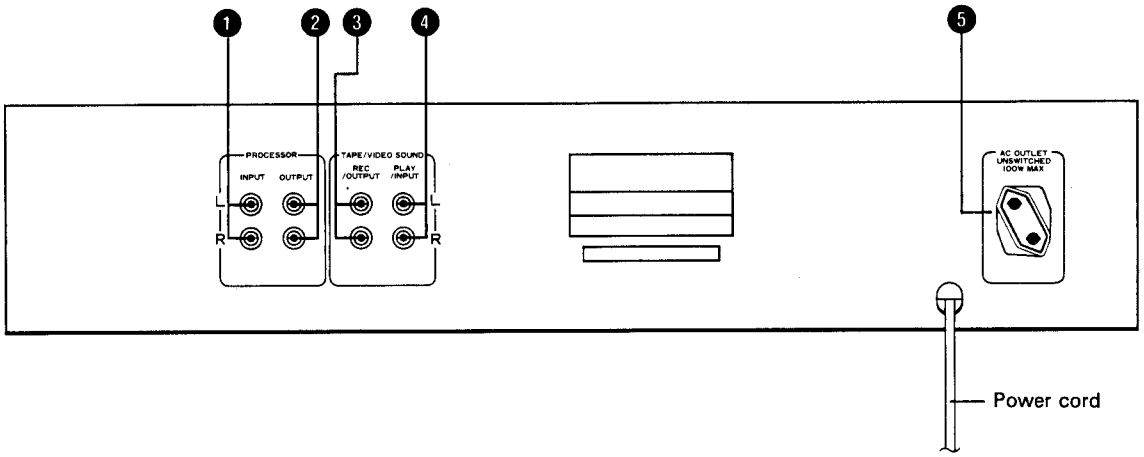
FOR USE IN THE UNITED KINGDOM

The wires in this mains lead are coloured in accordance with the following code:

Blue:	Neutral
Brown:	Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured marking identifying the terminals in your plug proceed as follows:
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

REAR PANEL FACILITIES



❶ PROCESSOR INPUT JACKS

Connect these jacks to the TAPE REC jacks on the stereo amplifier or to the PREAMP OUT (OUTPUT) jacks on the preamplifier.

❷ PROCESSOR OUTPUT JACKS

Connect these jacks to the TAPE PLAY jacks on the stereo amplifier or to the POWER AMP IN (INPUT) jacks on the power amplifier.

❸ TAPE/VIDEO SOUND REC/OUTPUT JACKS

Connect these jacks to the INPUT (REC) jacks on the tape deck.

❹ TAPE/VIDEO SOUND PLAY/INPUT JACKS

Connect these jacks to the OUTPUT (PLAY) jacks on the tape deck.

❺ AC OUTLET (UNSWITCHED 100 W MAX)

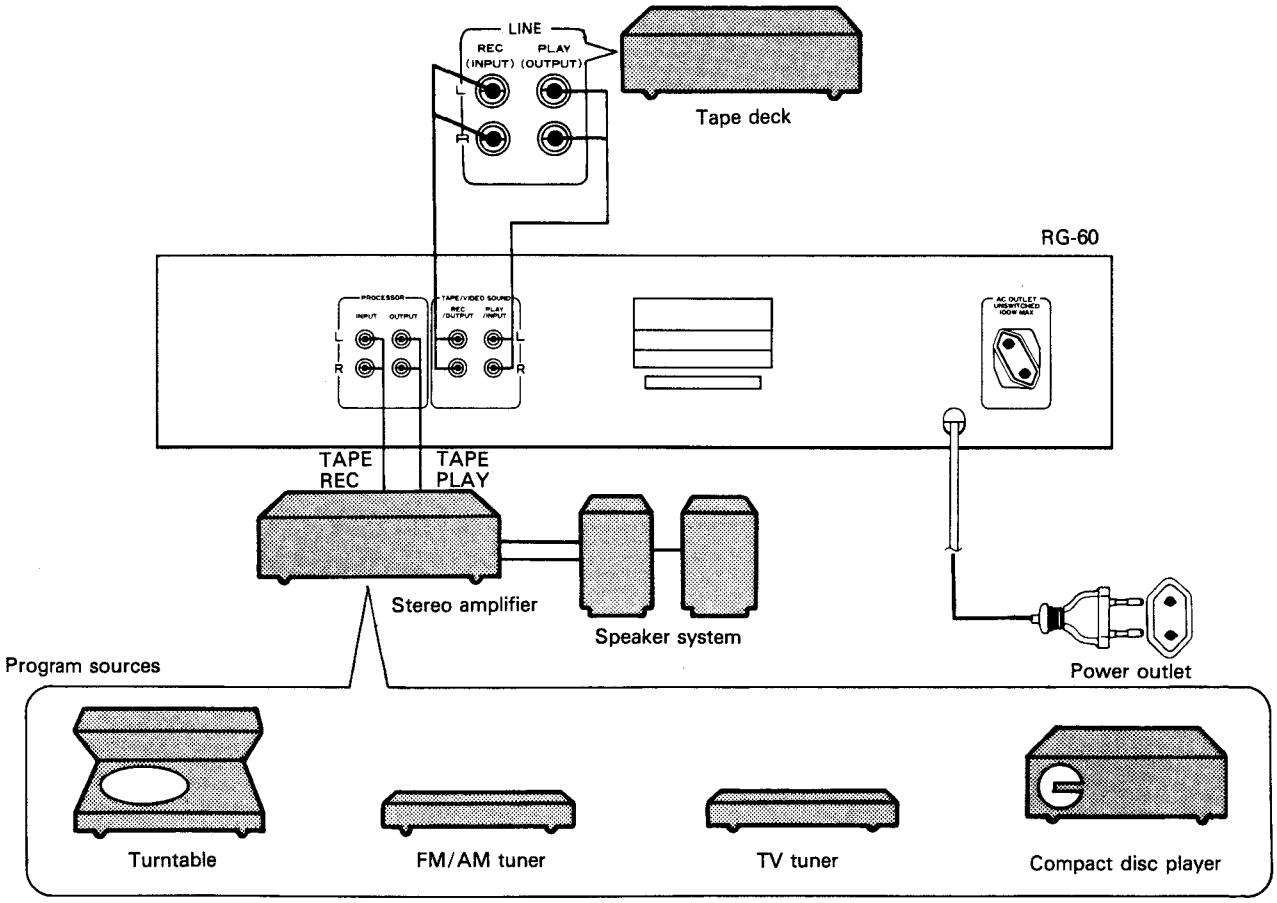
Power flows continually to this outlet, regardless of whether the amplifier is switched ON or OFF. Electrical power consumption of the connected equipment should not exceed 100 W.

The equipment should be disconnected by removing the mains plug from the wall socket when not in regular use, e.g. when on vacation.

NOTE:
Do not connect appliances with high power consumption such as heaters, irons, or television sets to the AC OUTLET, in order to avoid overheating or fire risk. This can cause the amplifier to malfunction.

ENGLISH

CONNECTION



CONNECTIONS TO STEREO AMPLIFIER

Use the accessory connecting cords to connect the PROCESSOR INPUT and PROCESSOR OUTPUT jacks on the RG-60 to the TAPE REC and TAPE PLAY jacks on a stereo amplifier (Fig. 1). Take care not to reverse the L (left) and R (right) channels, and make sure the connections are secure.

TAPE DECK CONNECTIONS

Since the RG-60 is connected to the TAPE REC and TAPE PLAY jacks of the stereo amplifier, a tape deck cannot be connected if the stereo amplifier is provided with only one set of tape jacks. In this case, connect the input and output jacks of the tape deck to the TAPE/VIDEO SOUND REC/OUTPUT and PLAY/INPUT jacks of the RG-60.

Connections for recording

Connect the recording input jacks (INPUT) on the tape deck to the TAPE/VIDEO SOUND REC/OUTPUT jacks on the RG-60.

Connections for playback

Connect the playback output jacks (OUTPUT) on the tape deck to the TAPE/VIDEO SOUND PLAY/INPUT jacks on the RG-60.

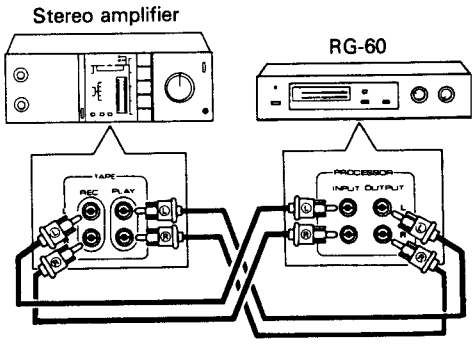


Fig. 1

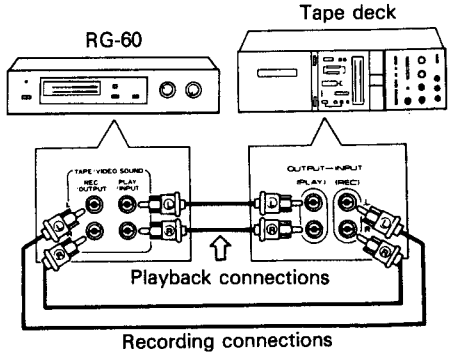
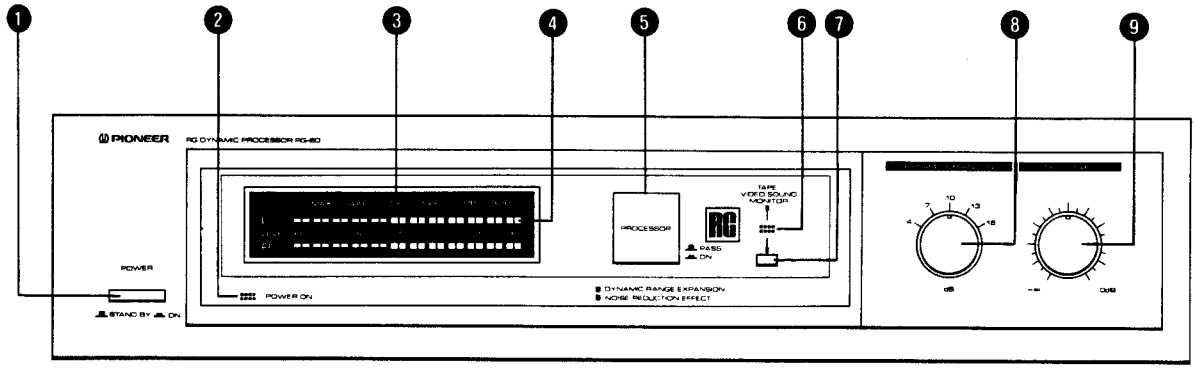


Fig. 2

FRONT PANEL FACILITIES



❶ POWER SWITCH (POWER)

When this switch is set to the ON position, power is supplied to the unit's main circuits. The unit's power switch is geared to selecting the transformer's secondary and so, even at the STAND-BY position, the unit's circuitry will work as long as the power cord is connected to the power outlet.
Disconnect the power cord from the power outlet when you do not plan to use the unit for a long period of time.

❷ POWER ON INDICATOR

This comes on as soon as the RG-60's power switch is set to ON to indicate that power is being supplied.

❸ DYNAMIC EXPANSION METER

This meter allows you to read out the gain boost with respect to the input signal in decibels. (See "meter interpretation" section on page 6.)

❹ DYNAMIC EXPANSION INDICATORS

The 4 dB, 7 dB, 10 dB, 13 dB and 16 dB indicators light up in accordance with the position of the dynamic expansion selector.

❺ PROCESSOR SWITCH

Depress this switch (ON) to produce an expansion effect with the signals fed from the PROCESSOR INPUT jacks. The dynamic expansion indicator will come on, and signals featuring an expansion effect only will be fed out from the model RG-60's OUTPUT jacks. In the PASS position, the RG-60 circuitry is bypassed. This position allows for instant comparison between the expanded and the unprocessed signals.

NOTE:
When the RG-60's POWER switch is set to the STAND-BY position and the PROCESSOR switch is also set to PASS, the signal which has bypassed the processor circuitry is made available at the OUTPUT jacks. There will, however, be no output if the INPUT LEVEL control is set to the "−∞" position. Make sure that this control is set to the "0 dB" position.

❻ TAPE/VIDEO SOUND MONITOR INDICATOR

This comes on when the tape/video sound monitor switch is depressed.

❼ TAPE/VIDEO SOUND MONITOR SWITCH

Depress this switch to monitor the sound on the tape as it is being recorded or when playing back a tape using a tape deck connected to the RG-60's TAPE/VIDEO SOUND jacks (the tape monitor indicator comes on). Set the switch to off when not in use.

❽ DYNAMIC EXPANSION SELECTOR

This selector selects maximum gain boost value with respect to the input level, i.e., the ratio of gain increase between a large input signal and a small input signal. Maximum gain boost increases as the selector is turned clockwise. Set the selector to the most desirable position while listening to the reproduced sound.

**Dynamic Expansion*
Dynamic expansion is defined as the sum of the downward expansion (where small inputs are expanded down) and upward expansion (where large inputs are expanded up). For details, refer to "Technical Outline" on page 7.

❾ INPUT LEVEL CONTROL

Use this control to adjust the input level at which the expansion effect is initiated. Clockwise rotation increases the expansion with respect to small signal levels (increases the expansion sensitivity). Adjust the control for the desired effect according to program source.

ENGLISH

OPERATION

PRIOR TO SWITCHING POWER ON

Set the controls and switches to the following positions before operating the model RG-60.

1. Set the dynamic expansion selector to "10".
2. Set the input level control to the center position "5".
3. Set the tape/video sound monitor switch to off (released).
4. Set the processor switch to PASS (released).
5. Set the tape/video sound monitor switch (when is related to the TAPE jacks connecting the RG-60) on the stereo amplifier to ON.

OPERATION PROCEDURE

1. Play the program source on the stereo amplifier, and listen to the sound without the expansion effect.
2. Depress the processor switch (ON).
3. Rotate the input level control and set it so that the indication on the dynamic expansion meter is brought to its widest.
   For instance, when the dynamic expansion selector is set to the "10" position, adjust so that the display indicates up to "10" when a high input signal is fed in (see Fig. 3).
4. Adjust the volume control on the stereo amplifier for suitable volume.
5. Operate the dynamic expansion selector and set it to the position (4, 7, 10, 13 or 16) where the desired expansion is obtained.
6. Adjust the volume and tone controls on the stereo amplifier for the desired volume and tone.

Dynamic Expansion Meter

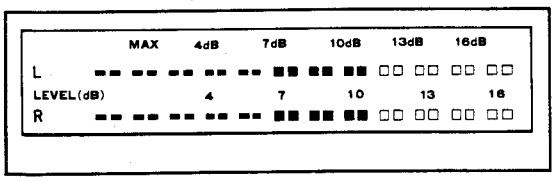


Fig. 3

USING A TAPE DECK

By setting the tape monitor switch on the stereo amplifier to ON, and the processor switch on the RG-60 to PASS, the tape/video sound monitor switch on the RG-60 can be operated in place of that on the stereo amplifier. The signal at the RG-60 TAPE REC jacks bypasses the processor.

When Employing the Processor for Tape Playback

1. Depress the tape/video sound monitor switch (ON).
2. Depress the processor switch (ON).
3. Other operations are the same as described in "OPERATION PROCEDURE".

FOR MAXIMUM ENJOYMENT

Effect on the music source.

The RG-60 increases the level variations in the music source. High level and percussive material such as jazz and rock are best played at the dynamic expansion selector settings of 10, 13 and 16 dB, while delicate music such as instrumental solos and chamber music can be given an unnatural effect if too much expansion is used, so the 4 to 10 dB settings are recommended for this type of source. Other factors such as room acoustics also affect the choice of setting, but, with the range of settings provided, almost all recorded material will benefit from the unique processing available in this unit.

Changes in the ambience

The RG-60 serves to expand the dynamic range of the music source. Whenever there is a difference between the levels of the left and right channel input signals, this difference is expanded.

Say, for instance, the difference between the left and right levels is 2 dB. This is expanded to 4 dB or 6 dB. This in turn translates into a change in the ambience of the sound as heard by the listener. With a music source arranged like that in Fig. 4, an interesting effect is obtained whereby the position of the vocalist at the center moves to the left and right along with the fluctuations in the difference between the left channel (bass) and right channel (piano).

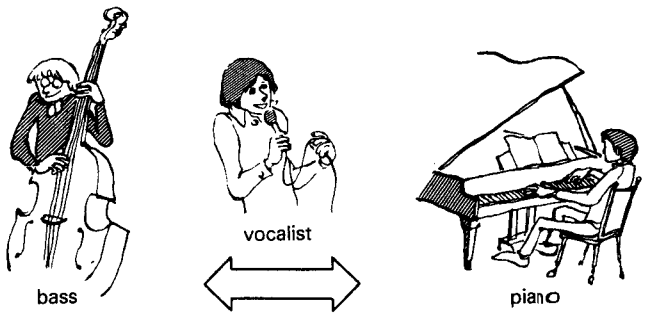


Fig. 4

METER INTERPRETATION

The meter indicates the instantaneous maximum dynamic expansion amount in dB. Maximum meter deflections are 4, 7, 10, 13 and 16 dB according to the dynamic expansion selector setting. Partial mixing of L and R channel signals causes both meters to deflect even with only one channel input. However, the separation does not change with stereo reproduction.

TECHNICAL OUTLINE

The basic function of the RG-60 is to expand the level variations of the input signal (see Fig. 5: input-output transfer characteristics). Due to the expander circuit composition, the input and output circuits are not necessarily linear.
The block diagram is shown below. The circuit consists mainly of a flat frequency response gain control amplifier (GCA) and a sensor section which produces the signal to control the gain of the gain control amplifier. After passing through the input level control and buffer amplifier, a portion of the input signal goes to the sensor section. At the sensor section, the signal first passes through an energy distribution filter, which possesses a slope of −6 dB/octave above and below a 2.5 kHz center frequency. This effectively reduces noise components such as motor rumble, hum and tape hiss, yielding only the center frequency component. At the RG detector, a peak detector (ripple cancelling type) produces a DC output proportional to the peak values of the AC input signal. The output from this RG detector becomes the gain control signal for the GCA.
Current from the sensor section determines the open-loop gain of the gain control amplifier. The gain therefore increases as the control current increases in accordance with the input signal. The characteristics of this signal undergo changes such as those in Fig. 6: input-gain characteristics. To provide these characteristics, an NFB (negative feedback) circuit returns a portion of the GCA output to the input, and the dynamic expansion selector selects the NFB elements to control the feedback ratio, thereby determining the total gain (Fig. 6).
Left and right channels are mixed by a blending resistor at the sensor section input, to prevent excessive gain difference between the channels from producing an unnatural effect during stereo playback.

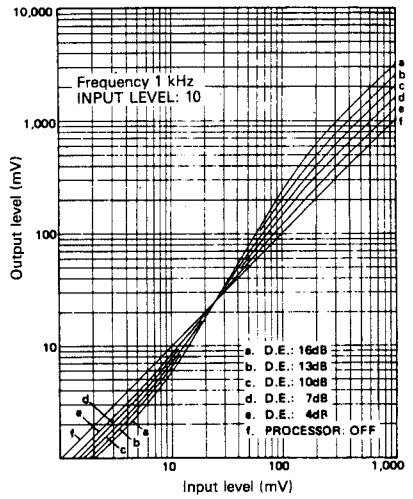


Fig. 5: RG processor input-output transfer characteristics

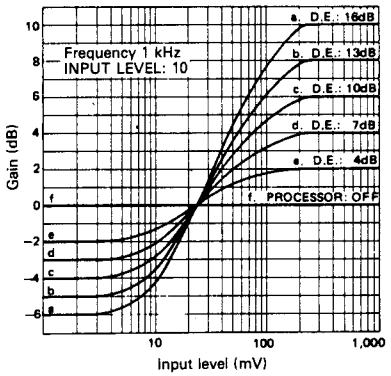


Fig. 6: RG processor input-gain characteristics

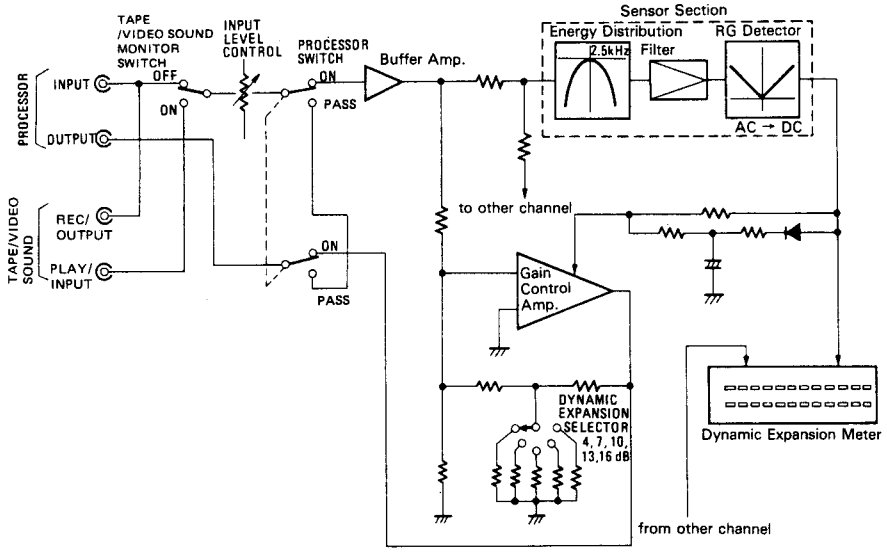


Fig. 7

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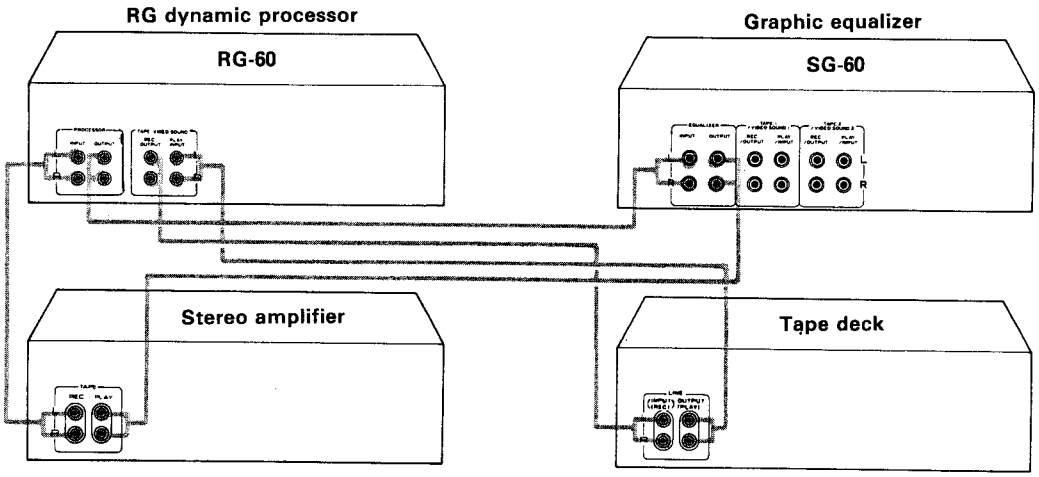
EFFECTIVE OPERATION

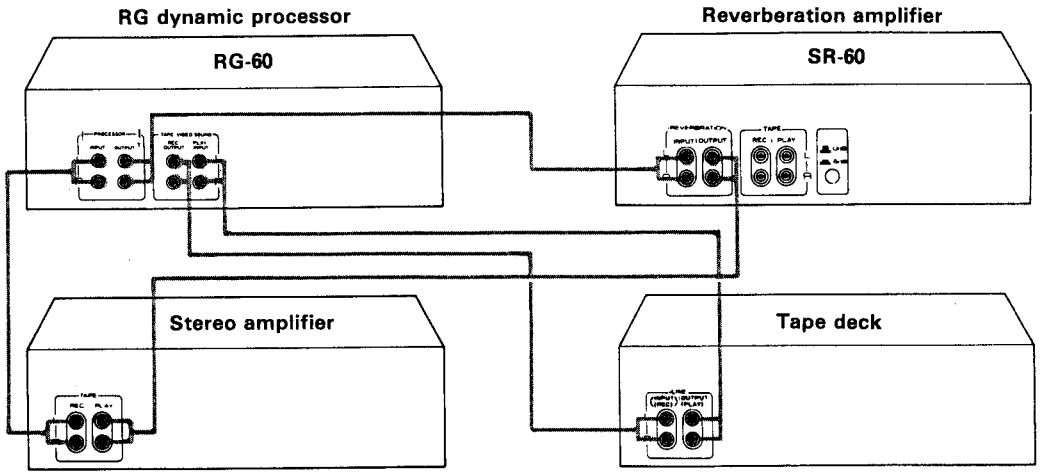
1. When the SG-60 and RG-60 are used at the same time.



	NOTE 1		NOTE 2					NOTE 3				
	PREMAIN AMP.			RG-60					SG-60			
	FUNCTION	REC OUT	TAPE MONITOR	POWER	TAPE /VIDEO SOUND MONITOR	PRO-CESSOR	DYNAMIC EXPAN-SION	INPUT LEVEL	POWER	LINE OUT SELEC-TOR	INPUT SELECTOR	OCTAVE CON-TROLS
Record, AM/FM recording	TAPE 1	PHONO or TUNER	OFF	–	OFF	PASS	–	–	–	SOURCE	–	–
Record, AM/FM reproduction + Equalizing	TAPE 1	PHONO or TUNER	ON	–	OFF	PASS	–	Adjust	ON	EQUAL-IZER	SOURCE	Adjust
Record, AM/FM reproduction + Expansion	TAPE 1	PHONO or TUNER	ON	ON	OFF	ON	Adjust	Adjust	–	SOURCE	–	–
Record, AM/FM reproduction + Equalizing + Expansion	TAPE 1	PHONO or TUNER	ON	ON	OFF	ON	Adjust	Adjust	ON	EQUAL-IZER	SOURCE	Adjust
Tape playback	TAPE 1	–	ON	–	ON	PASS	–	Adjust	–	SOURCE	–	–
Tape playback + Equalizing	TAPE 1	–	ON	–	ON	PASS	–	Adjust	ON	EQUAL-IZER	SOURCE	Adjust
Tape playback + Expansion	TAPE 1	–	ON	ON	ON	ON	Adjust	Adjust	–	SOURCE	–	–
Tape playback + Equalizing + Expansion	TAPE 1	–	ON	ON	ON	ON	Adjust	Adjust	ON	EQUAL-IZER	SOURCE	Adjust

NOTES:
1. When premain amplifiers (A-9, A-8, A-7, A-6, A-5, etc.) equipped with a REC OUT SELECTOR are used.
2. When other premain amplifiers, receivers, etc. are used.
3. When the TAPE MONITOR of the premain amplifier is set to ON (or TAPE 1), the RG-60 will not produce a sound if the input level is set to "$-\infty$". Be sure to adjust the input level control.

2. When the SR-60 and RG-60 are used at the same time.

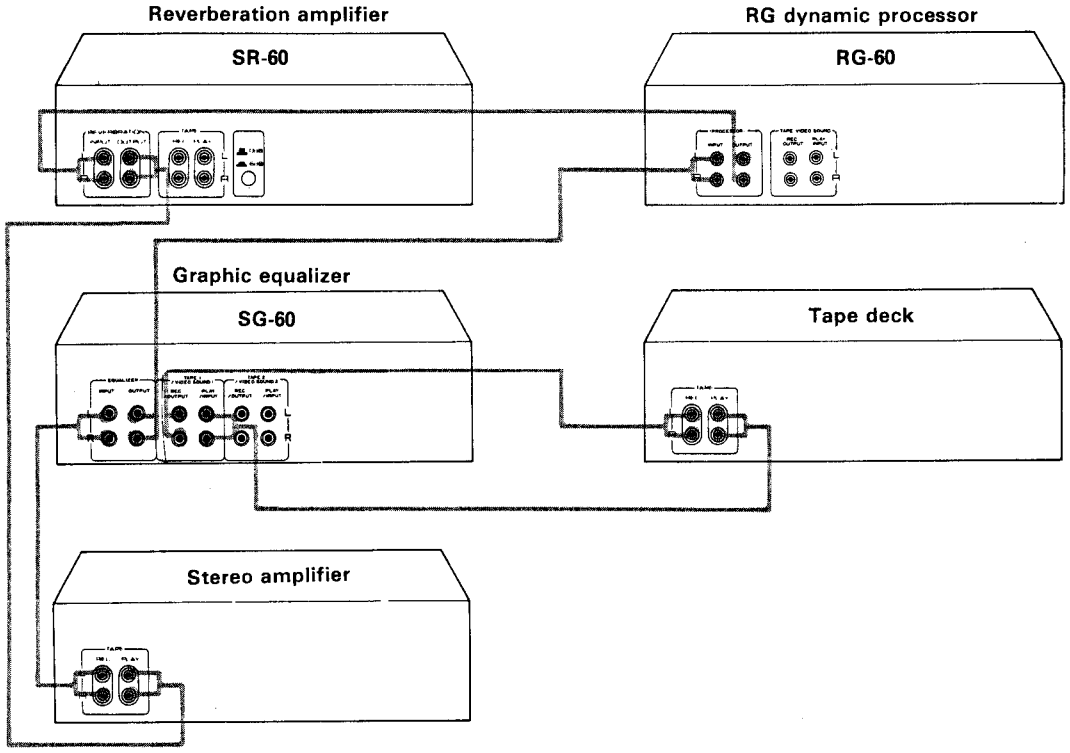


	NOTE 1 PREMAIN AMP.			NOTE 2 SR-60						NOTE 3 RG-60				
	FUNCTION	REC OUT	TAPE MONITOR	POWER	TAPE /VIDEO SOUND MONITOR	REVERB	EFFECT SELECTOR	REVERB LEVEL	LINE OUT	POWER	PRO-CESSOR	TAPE /VIDEO SOUND MONITOR	DYNAMIC EXPAN-SION	INPUT LEVEL
Record, AM/FM recording	TAPE 1	PHONO or TUNER	OFF	–	OFF	PASS	–	–	ON	–	PASS	OFF	–	Adjust
Record, AM/FM reproduction + Reverberation	TAPE 1	PHONO or TUNER	ON	ON	OFF	ON	Select	Adjust	ON	–	PASS	OFF	–	Adjust
Record, AM/FM reproduction + Expansion	TAPE 1	PHONO or TUNER	ON	–	OFF	PASS	–	–	ON	ON	ON	OFF	Adjust	Adjust
Record, AM/FM reproduction + Reverberation + Expansion	TAPE 1	PHONO or TUNER	ON	ON	OFF	ON	Select	Adjust	ON	ON	ON	OFF	Adjust	Adjust
Tape playback	TAPE 1	–	ON	–	OFF	PASS	–	–	ON	–	PASS	ON	–	Adjust
Tape playback + Reverberation	TAPE 1	–	ON	ON	OFF	ON	Select	Adjust	ON	–	PASS	ON	–	Adjust
Tape playback + Expansion	TAPE 1	–	ON	–	OFF	PASS	–	–	ON	ON	ON	ON	Adjust	Adjust
Tape playback + Expansion + Reverberation	TAPE 1	–	ON	ON	OFF	ON	Select	Adjust	ON	ON	ON	ON	Adjust	Adjust

NOTES:
1. When premain amplifiers (A-9, A-8, A-7, A-6, A-5, etc.) equipped with a REC OUT SELECTOR are used.
2. When other premain amplifiers, receivers, etc. are used.
3. When the TAPE MONITOR of the premain amplifier is set to ON (or TAPE 1), the RG-60 will not produce a sound if the input level is set to "−∞". Be sure to adjust the input level control.

ENGLISH

3. When the SG-60, RG-60 and SR-60 are used at the same time.



Shown above is an example where the RG-60 RG dynamic processor, SG-60 Graphic equalizer and SR-60 Reverberation amplifier are combined. Connect these components properly so you can enjoy the best sounds. For details, see the relevant operating instructions.

NOTE 1 NOTE 2 NOTE 3

	PREMAIN AMP.		PRE-MAIN AMP.	SR-60						RG-60					SG-60				
	FUNC-TION	REC OUT	TAPE MON-ITOR	POWER	TAPE /VIDEO SOUND MON-ITOR	REVERB	EFFECT SELEC-TOR	REVERB LEVEL	LINE OUT	POWER	PRO-CESSOR	TAPE /VIDEO SOUND MON-ITOR	DY-NAMIC EXPAN-SION	INPUT LEVEL	POWER	LINE OUT SELEC-TOR	INPUT SELEC-TOR	OCTAVE CON-TROLS	TAPE REC OUT
Record, AM/FM recording	TAPE 1	PHONO or TUNER	OFF	–	OFF	PASS	–	–	ON	–	PASS	OFF	–	–	–	SOUR-CE	SOURCE	–	PASS
Record, AM/FM reproduction + Equalizing	TAPE 1	PHONO or TUNER	ON	–	OFF	PASS	–	–	ON	–	PASS	OFF	–	Adjust	ON	EQUAL-IZER	SOURCE	Adjust	ON
Record, AM/FM reproduction + Reverberation	TAPE 1	PHONO or TUNER	ON	ON	OFF	ON	Select	Adjust	ON	–	PASS	OFF	–	Adjust	–	SOUR-CE	SOURCE	–	PASS
Record, AM/FM reproduction + Expansion	TAPE 1	PHONO or TUNER	ON	–	OFF	PASS	–	–	ON	ON	ON	OFF	Adjust	Adjust	–	SOUR-CE	SOURCE	–	PASS
Record, AM/FM reproduction + Equalizing + Reverberation	TAPE 1	PHONO or TUNER	ON	ON	OFF	ON	Select	Adjust	ON	–	PASS	OFF	–	Adjust	ON	EQUAL-IZER	SOURCE	Adjust	ON
Record. AM/FM reproduction + Reverberation + Expansion	TAPE 1	PHONO or TUNER	ON	–	OFF	PASS	–	–	ON	ON	ON	OFF	Adjust	Adjust	ON	EQUAL-IZER	SOURCE	Adjust	ON
Record, AM/FM reproduction + Reverberation + Expansion	TAPE 1	PHONO or TUNER	ON	ON	OFF	ON	Select	Adjust	ON	ON	ON	OFF	Adjust	Adjust	–	SOUR-CE	SOURCE	–	PASS
Record, AM/FM reproduction + Equalizing + Reverberation + Expansion	TAPE 1	PHONO or TUNER	ON	ON	OFF	ON	Select	Adjust	ON	ON	ON	OFF	Adjust	Adjust	ON	EQUAL-IZER	SOURCE	Adjust	ON
Tape playback	TAPE 1	–	ON	–	OFF	PASS	–	–	ON	–	PASS	OFF	–	Adjust	–	TAPE 1	–	–	–
Tape playback + Equalizing	TAPE 1	–	ON	–	OFF	PASS	–	–	ON	–	PASS	OFF	–	Adjust	ON	EQUAL-IZER	TAPE 1	Adjust	–
Tape playback + Reverberation	TAPE 1	–	ON	ON	OFF	ON	Select	Adjust	ON	–	PASS	OFF	–	Adjust	–	TAPE 1	–	–	–
Tape playback + Expansion	TAPE 1	–	ON	–	OFF	PASS	–	–	ON	ON	ON	OFF	Adjust	Adjust	–	TAPE 1	–	–	–
Tape playback + Reverberation + Equalizing	TAPE 1	–	ON	ON	OFF	ON	Select	Adjust	ON	–	PASS	OFF	–	Adjust	ON	EQUAL-IZER	TAPE 1	Adjust	–
Tape playback + Equalizing + Expansion	TAPE 1	–	ON	–	OFF	PASS	–	–	ON	ON	ON	OFF	Adjust	Adjust	ON	EQUAL-IZER	TAPE 1	Adjust	–
Tape playback + Reverberation + Expansion	TAPE 1	–	ON	ON	OFF	ON	Select	Adjust	ON	ON	ON	OFF	Adjust	Adjust	–	TAPE 1	–	–	–
Tape playback + Reverberation + Expansion + Equalizing	TAPE 1	–	ON	ON	OFF	ON	Select	Adjust	ON	ON	ON	OFF	Adjust	Adjust	ON	EQUAL-IZER	TAPE 1	Adjust	–

NOTE:
1. *When premain amplifiers (A-9, A-8, A-7, A-6, A-5, etc.) equipped with a REC OUT SELECTOR are used.*
2. *When other premain amplifiers, receivers, etc. are used.*
3. *When the TAPE MONITOR of the premain amplifier is set to ON (or TAPE 1), the RG-60 will not produce a sound if the input level is set to "−∞". Be sure to adjust the input level control.*

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SPECIFICATIONS

PROCESSOR SECTION

Maximum Output Voltage ..... 6.5 V
(1 kHz, T.H.D.: 0.5%, RL: 50 kΩ, DYNAMIC EXPANSION: 16 dB)
Total Harmonic Distortion 0.05%
(Output: 1 V, 1 kHz, DYNAMIC EXPANSION: 16 dB)
Dynamic Expansion ..... 4, 7, 10, 13 and 16 dB
Gain

DYNAMIC EXPANSION	4 dB	7 dB	10 dB	13 dB	16 dB
Upward Gain	+2 dB	+4 dB	+6 dB	+8 dB	+10 dB
Downward Gain	−2 dB	−3 dB	−4 dB	−5 dB	−6 dB

Impulse Response
Attack Time ..... 0.3 msec
Release Time ..... 120 msec
Input Impedance ..... 50 kΩ
Output Impedance ..... 220 Ω
Signal to Noise Ratio (IHF A, Short-circuited, DYNAMIC EXPANSION: 16 dB) ..... 100 dB (at 1 V)
106 dB (at 2 V)
116 dB (at 6.5 V)

MISCELLANEOUS

Power Requirements .....a.c. 220 Volts, 50/60 Hz
Power Consumption ..... 10 Watts
Dimensions ..... 420 (W) x 99 (H) x 340 (D) mm
16-9/19 (W) x 3-7/8 (H) x 13-3/8 (D) in.
Weight ..... 4.5 kg (9 lb 15 oz)

ACCESSORIES

Pin-plug connecting cords 2
Operating Instructions 1

NOTE:
Specifications and the design are subject to possible modification without notice, due to improvements.